

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (CURRENTLY AMENDED) An isolated polynucleotide comprising a nucleotide sequence chosen from:
 - a) a nucleotide sequence of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7;
 - b) a nucleotide sequence encoding a polypeptide according to SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8[,];
 - c) a nucleotide sequence of the DNA insert contained in the deposit no. CBS102221 or the deposit no. CBS102222 at the Centraalbureau voor Schimmelcultures at Baarn the Netherlands; or
 - d) a nucleotide sequence which is complimentary to the nucleotide sequence of (a) or (b) or (c).
2. (PREVIOUSLY AMENDED) The polynucleotide of claim 1 wherein said polynucleotide comprises:
 - a) the nucleotide sequence contained in SEQ ID NO: 1 encoding the polypeptide of SEQ ID NO: 2;
 - b) the nucleotide sequence contained in SEQ ID NO: 3 encoding the polypeptide of SEQ ID NO: 4;

- c) the nucleotide sequence contained in SEQ ID NO: 5 encoding the polypeptide of SEQ ID NO: 6; or
- d) the nucleotide sequence contained in SEQ ID NO: 7 encoding the polypeptide of SEQ ID NO: 8.

3-4. (CANCELED)

5. (PREVIOUSLY PRESENTED) The isolated polynucleotide of claim 1 which is DNA or RNA.

6. (PREVIOUSLY PRESENTED) An isolated polynucleotide encoding a neuromedin receptor protein of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8, said protein exhibiting ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00.

7. (PREVIOUSLY PRESENTED) The isolated polynucleotide of claim 6 encoding a polypeptide, wherein said polypeptide is expressed in at least one of brain, skeletal muscle, cerebellum, testis, corpus callosum, spinal cord, substantia nigra, medulla, thalamus, caudate nucleus, pons, nucleus accumbens, fetal brain, stomach, heart, thyroid gland, lung, thymus, prostate, and trachea.

8. (CURRENTLY AMENDED) An isolated polynucleotide encoding a neuromedin receptor protein of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8, wherein said protein exhibits ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00, and is expressed in at least one of brain, skeletal muscle,

cerebellum, testis, corpus callosum, spinal cord, substantia nigra, medulla, thalamus, caudate nucleus, pons, nucleus accumbens, fetal brain, stomach, heart, thyroid gland, lung, thymus, prostate, and trachea, and said ~~nucleotide sequence isolated~~
polynucleotide being selected from the group of nucleotide sequences as defined in claim 1.

9. (PREVIOUSLY PRESENTED) An expression system comprising a DNA or RNA molecule, wherein said expression system produces a polypeptide comprising an amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8 or with the polypeptide encoded by the DNA insert contained in the deposit no. CBS1 02221 or the deposit no. CBS1 02222 at the Centraalbureau voor Schimmelcultures at Baarn the Netherlands, when said expression system is present in a compatible host cell.

10. (CURRENTLY AMENDED) An expression system comprising an isolated DNA or RNA molecule, wherein said expression system produces a polypeptide of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8, wherein said polypeptide which comprises a neuromedin receptor protein, wherein said protein exhibits ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00, and is expressed in at least one of brain, skeletal muscle, cerebellum, testis, corpus callosum, spinal cord, substantia nigra, medulla, thalamus, caudate nucleus, pons, nucleus accumbens, fetal brain, stomach, heart, thyroid gland, lung, thymus, prostate, and trachea.

11. (PREVIOUSLY PRESENTED) A host cell comprising the expression system of claim 9.

12. (PREVIOUSLY PRESENTED) The host cell according to claim 11 wherein the host cell is a yeast cell.

13. (PREVIOUSLY PRESENTED) The host cell according to claim 11 wherein the host cell is an animal cell.

14. (PREVIOUSLY PRESENTED) A membrane preparation prepared from a cell, wherein the cell comprises an expression system comprising a DNA or RNA molecule, wherein said expression system produces a polypeptide comprising an amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 or the polypeptide encoded by the DNA insert contained in the deposit no. CBS1 02221 or the deposit no. CBS1 02222 at the Centraalbureau voor Schimmelcultures at Baarn the Netherlands, when said expression system is present in a compatible host cell.

15. (PREVIOUSLY PRESENTED) A process for producing a polypeptide of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 comprising culturing the host cell of claim 11 under conditions sufficient for the production of said polypeptide and recovering the polypeptide from the culture.

16. (PREVIOUSLY PRESENTED) A process for producing a cell which produces a polypeptide of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 comprising transforming or transfecting a host cell with the expression system of claim

9 such that the host cell, under appropriate culture conditions, produces a neuromedin receptor protein of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8.

17. (PREVIOUSLY PRESENTED) An isolated polypeptide comprising an amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 or the polypeptide encoded by the DNA insert contained in the deposit no. CBS102221 or the deposit no. CBS102222 at the Centraalbureau voor Schimmelcultures at Baarn the Netherlands.

18. (CANCELED)

19. (PREVIOUSLY PRESENTED) An isolated polypeptide of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8, wherein said polypeptide is a neuromedin receptor protein that exhibits ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00.

20. (PREVIOUSLY PRESENTED) The isolated polypeptide of claim 19, wherein said neuromedin receptor protein is expressed in at least one of brain, skeletal muscle, cerebellum, testis, corpus callosum, spinal cord, substantia nigra, medulla, thalamus, caudate nucleus, pons, nucleus accumbens, fetal brain, stomach, heart, thyroid gland, lung, thymus, prostate, and trachea.

21. (PREVIOUSLY PRESENTED) An isolated polypeptide, wherein said polypeptide exhibits ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00, and wherein said protein is expressed in at least one of brain, skeletal

muscle, cerebellum, testis, corpus callosum, spinal cord, substantia nigra, medulla, thalamus, caudate nucleus, pons, nucleus accumbens, fetal brain, stomach, heart, thyroid gland, lung, thymus, prostate, and trachea, wherein the amino acid sequence of the protein is selected from the group of amino acid sequences as defined in claim 17.

22-25. (CANCELED)

26. (CURRENTLY AMENDED) A method for identifying agonists to an isolated neuromedin receptor protein, comprising:

(a) contacting a cell which produces a neuromedin receptor protein with a test compound, wherein the neuromedin receptor protein comprises an amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 or the polypeptide encoded by the DNA insert contained in the deposit no. CBS102221 or the deposit no. CBS 102222 at the Centraalbureau Centraalbureau voor Schimmelcultures at Baarn the Netherlands over its entire length; and

(b) determining whether the test compound effects a signal generated by activation of the neuromedin receptor protein in the cell.

27. (CANCELED)

28. (PREVIOUSLY PRESENTED) A method for identifying agonists to a neuromedin receptor protein, wherein said protein exhibits ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00, comprising:

(a) contacting a cell which produces a neuromedin receptor protein of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or SEQ ID NO: 8 with a test compound; and

(b) determining whether the test compound effects a signal generated by activation of the neuromedin receptor protein.

29. (PREVIOUSLY PRESENTED) The method of claim 28, wherein said agonists are effective with regard to at least one of disorders of the nervous system, disorders of the gastrointestinal system, disorders of the cardiovascular system, disorders of the skeletal muscle, disorders of the thyroid, lung diseases, immunological diseases, and disorders of the genitourinary system.

30. (CANCELED)

31. (CURRENTLY AMENDED) A method for identifying antagonists to an isolated neuromedin receptor protein comprising:

(a) contacting a cell which produces a neuromedin receptor with an agonist and a potential antagonist, wherein the neuromedin receptor protein comprises an amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 or the polypeptide encoded by the DNA insert contained in the deposit no. CBS102221 or the deposit no. CBS 102222 at the Centraalbureau Centraalbureau voor Schimmelcultures at Baarn the Netherlands over its entire length; and

(b) determining whether the signal generated by said agonist in the cell is diminished in the presence of the potential antagonist.

32. (CANCELED)

33. (CURRENTLY AMENDED) A method for identifying antagonists to a neuromedin receptor protein, said protein exhibiting ligand binding for neuromedin U with a log EC₅₀ value of at least below -6.00, comprising:

- (a) contacting a cell which produces a neuromedin receptor protein of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 with an agonist and a potential antagonist; and
- (b) determining whether the signal generated by said agonist is diminished in the presence of the potential antagonist.

34. (PREVIOUSLY PRESENTED) A method for identifying antagonists to a neuromedin receptor protein according to claim 33, wherein said antagonists are effective with regard to at least one disorder chosen from disorders of the nervous system, the gastrointestinal system, the cardiovascular system, the skeletal muscle, the thyroid, the lung, immune system, or the genitourinary system.

35. (CANCELED)

36. (PREVIOUSLY PRESENTED) A recombinant host cell, produced by the method of claim 16 wherein the host cell expresses a neuromedin receptor protein.

37. (CANCELED)

38. (PREVIOUSLY PRESENTED) A method of determining whether a substance is a potential ligand of a neuromedin receptor protein comprising:

- (a) contacting cells expressing a neuromedin receptor protein of one of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 and SEQ ID NO: 8, or contacting a receptor

membrane preparation prepared from a cell, wherein the cell comprises an expression system that produces a neuromedin receptor protein comprising an amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8 or the polypeptide encoded by the DNA insert contained in the deposit no. CBS102221 or deposit no. CBS102222 at the Centraalbureau voor Schimmelcultures at Baarn the Netherlands, when said expression system is in a compatible host cell, with labeled neuromedin U in the presence and in the absence of the substance; and

(b) measuring the binding of neuromedin U to the neuromedin receptor protein of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, or SEQ ID NO: 8.

39. (PREVIOUSLY PRESENTED) An isolated polypeptide according to claim 17, wherein the polypeptide binds neuromedin U, and has an affinity of about at least $\log EC_{50}=-6$.

40. (PREVIOUSLY PRESENTED) An isolated polypeptide according to claim 17, wherein the polypeptide binds neuromedin U, and has an affinity of at least about $\log EC_{50}=-9$.

41. (CANCELED)

42. (PREVIOUSLY PRESENTED) The isolated polynucleotide of claim 6, wherein the neuromedin receptor protein is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

43. (PREVIOUSLY PRESENTED) The isolated polynucleotide of claim 8, wherein the neuromedin receptor protein is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

44. (PREVIOUSLY PRESENTED) The expression system of claim 10, wherein the neuromedin receptor protein is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

45. (PREVIOUSLY PRESENTED) The isolated polypeptide of claim 19, wherein the neuromedin receptor protein is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

46. (PREVIOUSLY PRESENTED) The isolated polypeptide of claim 21, wherein the polypeptide is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

47. (CANCELED)

48. (PREVIOUSLY PRESENTED) The method of identifying agonists of claim 28, wherein the neuromedin receptor protein is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

49. (CANCELED)

50. (PREVIOUSLY PRESENTED) The method of identifying antagonists of claim 33, wherein the neuromedin receptor protein is a mammalian neuromedin receptor protein and neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

51. (CANCELED)

52. (PREVIOUSLY PRESENTED) The isolated polypeptide of claim 39, wherein the neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

53. (PREVIOUSLY PRESENTED) The isolated polypeptide of claim 40, wherein the neuromedin U is at least one of neuromedin U-8, neuromedin U-23, and neuromedin U-25.

54. (PREVIOUSLY PRESENTED) A host cell comprising the expression system of claim 10.

55. (PREVIOUSLY PRESENTED) The method of identifying agonists to the neuromedin receptor protein according to claim 29, wherein disorders of the nervous system are disorders of the central nervous system (CNS) or the peripheral nervous system (PNS).

56. (PREVIOUSLY PRESENTED) The method for identifying antagonists to the neuromedin receptor protein according to claim 34, wherein disorders of the nervous system are disorders of the central nervous system (CNS) or the peripheral nervous system (PNS).

57-59. (CANCELED)

60. (CURRENTLY AMENDED) An isolated polypeptide comprising an amino acid sequence of a neuromedin receptor protein, wherein said protein exhibiting high affinity binding for neuromedin U, wherein said protein is expressed in at least one of brain, skeletal muscle, cerebellum, testis, corpus callosum, spinal cord, substantia nigra, medulla, thalamus, caudate nucleus, pons, nucleus accumbens, fetal brain, stomach, heart, thyroid gland, lung, thymus, prostate, and trachea, and said amino acid sequence being selected from the group of amino acid sequences as defined in claim [[18]] 17.

61-69. (CANCELED)